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## (54) Audio-visual display apparatus

(57) An audio-visual display apparatus contained in a housing (1) comprises a slide projector which projects a series of still pictures on a screen (5) accompanied by a spoken commentary selected by press buttons (7) from two or more sound record playback units for reproducing through loudspeaker (6) different commentaries, for example in different languages, relative to the same sequence of still pictures. The selected commentary controls the times of picture change so as to maintain the matching of successive parts of the commentaries with successive pictures irrespective of whichever commentary is selected.

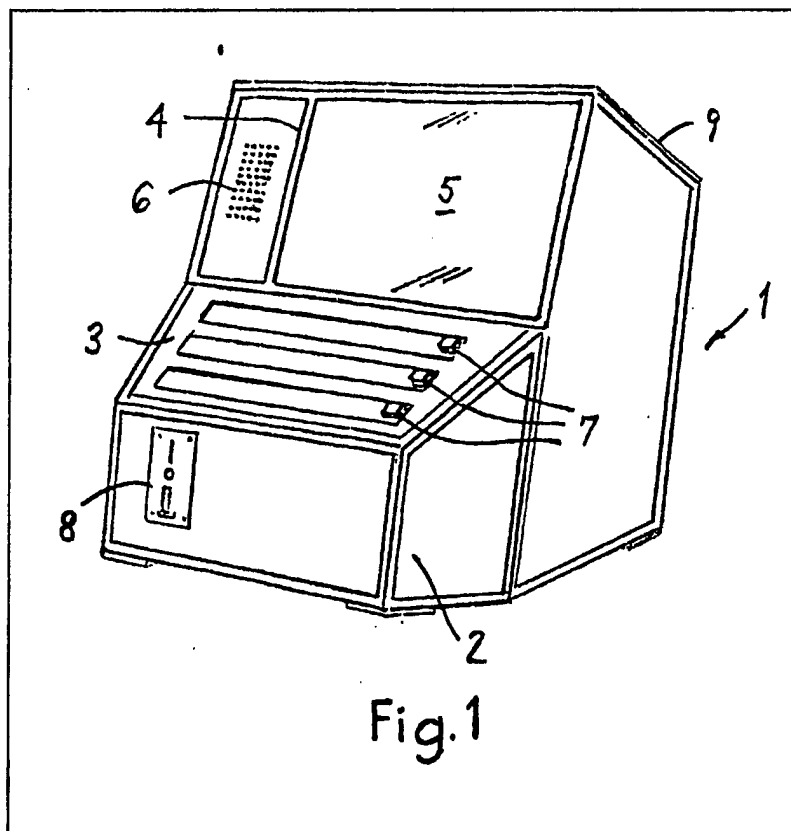


Fig.1

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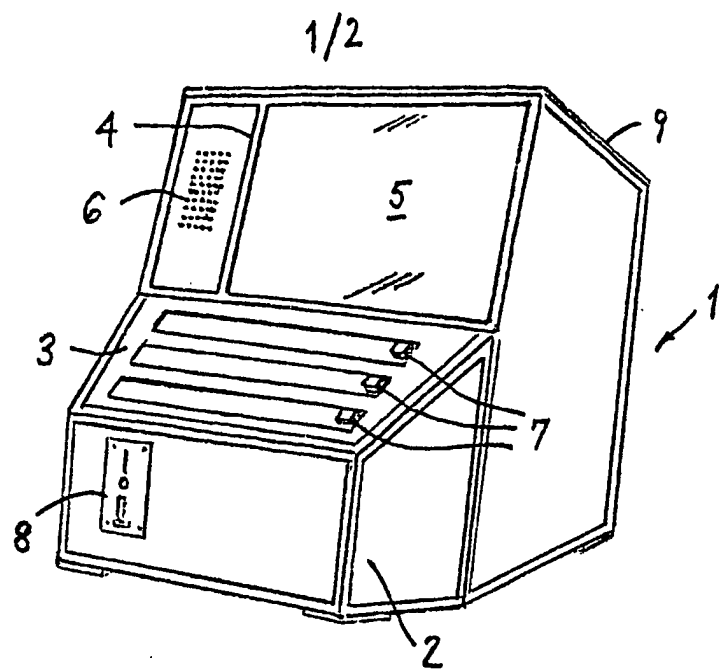


Fig. 1

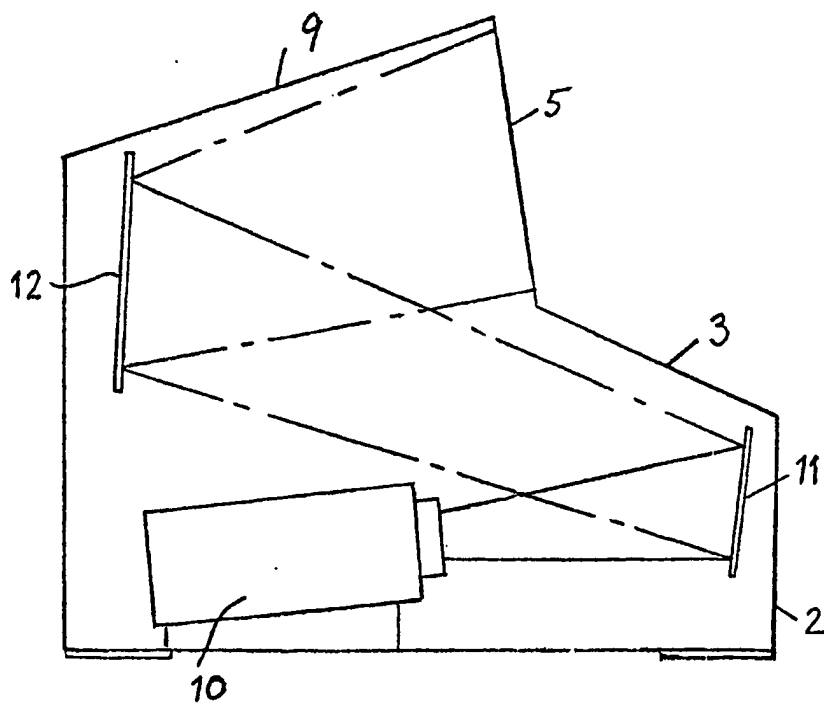


Fig. 2

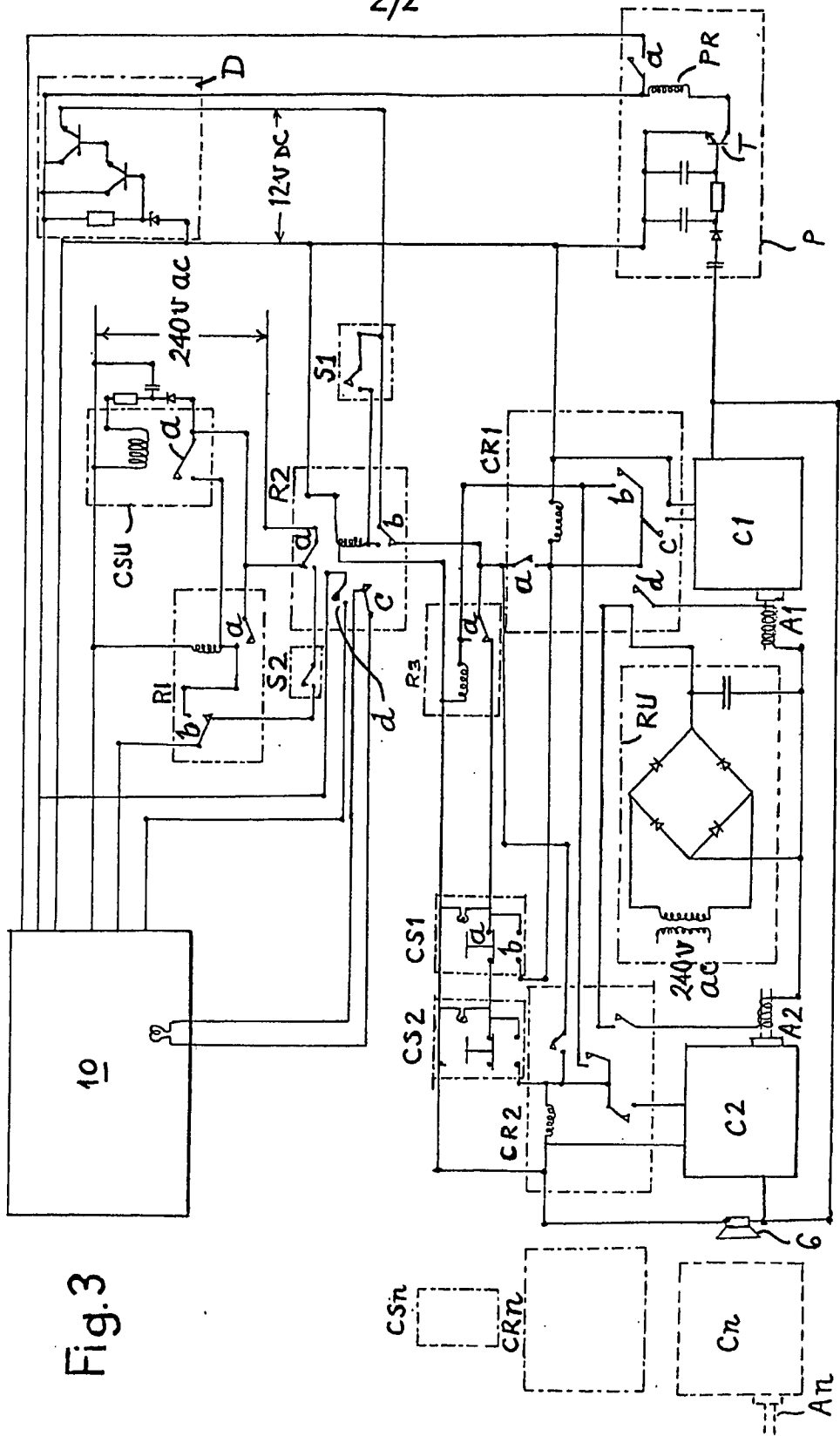


Fig. 3

## SPECIFICATION

## Audio-visual display apparatus

5 The invention relates to audio-visual display apparatus in which a series of still pictures are displayed in sequence, preferably on a screen, and accompanied by a sound record, generally a tape record, comprising a spoken commentary appropriate to the pictures displayed and matched in to the successive picture changes, and is characterised in that the apparatus comprises a plurality of sound record playback units for reproducing different commentaries relative to the same sequence of still pictures, and means for selecting playback of any one of the desired commentaries to accompany the display of the same sequence of still pictures, the selected commentary controlling the times of picture change so as to maintain the matching irrespective of whichever commentary is selected.

For example, an audio-visual display apparatus installed in a hotel foyer for guidance of overseas visitors on public transport facilities, or in a department store for indicating the various departments and how they can be reached, can be equipped with two or more playback-units for reproducing commentaries in different languages. Again, an apparatus for displaying merchandise, such as engineering products, could have commentaries relating to general features of the products, to technical details to prices etc. In each case the different sections of the commentary relating to particular pictures would most probably be of different duration so that the pictures would have to change over at different time intervals to maintain matching between the pictures and the different commentaries. This is achieved, according to one embodiment, by triggering the picture change mechanism by signals generated by the sound records. For example, each record could be a twin-track magnetic tape, one track bearing the commentary and the second track bearing appropriately positioned triggering pulses. The playback units can be conventional stereo cassette tape recorders.

The still pictures may comprise slides or a film strip, which may be endless. The apparatus may be coin-operated.

In order that the invention may be more clearly understood, reference will now be made to the accompanying drawings, in which:-

*Figure 1* is a perspective view of one embodiment of an apparatus according to the invention,

*Figure 2* is a diagrammatic front-to-back section through the apparatus of *Figure 1* showing the arrangement of the slide projector and screen, and

*Figure 3* is a circuit diagram.

As shown in *Figure 1*, the apparatus is conveniently housed in a cabinet 1 having a front extension 2 with a sloping upper surface 3, above which the generally upright front face 4 of the cabinet comprises a translucent projection screen 5 and a loudspeaker grille 6. On the sloping surface 3 are arranged a plurality of selector buttons 7 corresponding to the number of spoken commentaries provided by the apparatus. The sloping surface can also bear instructions in one or more languages as to the use of the apparatus. If the apparatus is to be coin-operated, the coin slot mechanism 8 can be arranged on the front extension. The lid 9 is preferably openable for access to the projector and other equipment within the cabinet.

A conventional slide projector 10 with slide tray mechanism is mounted on the base of the cabinet (see *Figure 2*) and its beam is focussed on to the back of the screen 5 via a mirror 11 mounted on the inside of the front extension 2 and a second mirror 12 mounted on the back wall of the cabinet. The mirrors may be adjustable.

As indicated in the circuit diagram of *Figure 3*, the apparatus also comprises a plurality of stereo cassette recorders referenced C1, C2....Cn respectively controlled by 4-pole relays CR1, CR2....Cn in accordance with the operation of the selector buttons 7 represented in *Figure 3* by the switches CS1, CS2....CSn. It further comprises a double-pole relay R1, a 4-pole relay R2, a single pole relay R3 and two switches S1 and S2 operated by the slide tray, S1 being normally open and being closed when the front of the slide tray is located at a position set so that the required number of slides have been shown and S2 being normally closed and being opened when the slide tray has moved back into its initial position. There is also a coin switching unit CSU, a Darlington pair D for deriving a 12-volt DC supply from the 24-volt DC output from the DIN plug on the back of the projector 10, a pulse switching unit P responsive to the switching pulses on the second track of the magnetic tape record, and a mains rectifier unit RU for supplying power to the cassette solenoids A1, A2....An of which the armatures are spring-pressed so as normally to hold the respective cassette drive pinions out of engagement with the respective tapes.

In the initial condition of the apparatus the 240V AC mains voltage is connected only to the coin switching unit CSU via the pole *a* of relay R2. Upon insertion of a coin, contact *a* of CSU closes to energise relay R1 which closes a holding circuit for itself through its pole *a*, and through its pole *b* supplies mains voltage to the projector 10. The projector lamp lights up and the first slide is projected on to the screen 5. The 24V DC output from the back of the projector is supplied to the Darlington pair D, the 12V DC output from which is supplied via pole *a* of relay R3 to selector switches CS1, CS2....CSn, each of which illuminates its corresponding press button. Upon pressing that one of the illuminated press buttons corresponding to the selected text, e.g. language, to be reproduced, for example CS1, the 12V supply through R3a is connected through the *b* contacts of CS1 to relay CR1 which self-latches through its *a* pole and at its *b* pole closes a circuit to energise relay R3 which self-latches via contact *a* and cuts off the 12V supply to all the selector switches CS1 to CSn. At its *c* pole relay CR1 connects power to cassette recorder C1. At its *d* pole the rectifier RU is connected to energise the cassette solenoid A1 which removes the spring pressure of its armature from the cassette button and so allows the drive pinion to engage the tape.

Hence the tape of cassette recorder C1 starts to move. The output from the voice track is fed to the loudspeaker 6. The output from the other track containing the switching pulses is fed to the pulse switching unit P. This unit is a rectifying unit which drives a transistor T controlling a relay PR. When a pulse is received the transistor conducts and energises relay PR which through closure of its *a* contact applies a 24V output from the projector to the operating mechanism of the slide tray to advance the slide tray, so that the projector shows the next slide. Successive slides are displayed at each pulse until the slide tray operates switch S1 located in front of the slide tray and adjusted to be engaged when the required number of slides have been shown. At this time the spoken commentary will have ended and the tape, which may be an endless loop, will be ready for another cycle.

When switch S1 closes, relay R2 is energised and closes a locking circuit for itself through its pole *b*. As power is supplied through this pole *b* to the cassette recorder C1 and its relay CR1, the cassette recorder stops. Power is also removed from switches CS1, CS2, ..., CSn and relays CR2, ..., CRn. At contact R2a, the main voltage is removed from relay R1 and the coin-switching unit CSU of which the solenoid then allows a lever to cover the coin slot, preventing insertion of a further coin. Mains voltage continues to be applied to the projector 10 via pole *a* of R2, switch S2 and pole *b* of R1, but the projector lamp is switched off as power is applied to it via pole *c* of R2. Pole *d* of R2 applies voltage to reverse the slide tray operating mechanism on the projector, whereby the slide tray is reset to its initial condition, i.e. to slide one. As the projector lamp is off, no slides are projected during this resetting.

When the slide tray has been moved back to its initial position, switch S2, which is located to the rear of the tray, is operated and opens its contacts. This disconnects the mains voltage from the projector 10, which stops. The 12-volt DC supply is also switched off so that relay R2 deenergises and its poles return to the initial condition. The solenoid of the coin switching unit CSU deenergises and allows the lever covering the coin slot to move and uncover the slot. The apparatus remains in this initial condition until another coin is inserted.

While a particular embodiment has been described, it will be understood that various modifications may be made without departing from the scope of the invention.

#### CLAIMS (Filed on 13/4/83)

1. Audio-visual display apparatus in which a series of still pictures are displayed in sequence and accompanied by a sound record comprising a spoken commentary appropriate to the pictures displayed and matched to the successive picture changes, characterised in that the apparatus comprises a plurality of sound record playback units for reproducing different commentaries relative to the same sequence of still pictures, and means for selecting playback of any one of the desired commentaries to accompany the display of the same

sequence of still pictures, the selected commentary controlling the times of picture change so as to maintain the matching irrespective of whichever commentary be selected.

2. Apparatus according to claim 1, wherein the means for selecting the commentary to be played comprises a plurality of selector switches which are connected in parallel across a D.C. supply derived from the current supplied to a projector for displaying the still pictures, actuation of a selector switch closing a circuit to energise a corresponding one of a plurality of relays individual to a respective sound record playback unit, energisation of a said relay closing a locking circuit for itself and disconnecting the D.C. supply from all the selector switches.

3. Apparatus according to claim 2, wherein the energisation of said relay also starts the associated sound record playback unit, operation of which produces signals to change the pictures in succession in timed relation to the progress of the selected commentary.

4. Apparatus according to claim 3, wherein upon completion of displaying all the pictures of the sequence a switch is operated which causes (a) the said energised relay to deenergise and stop the associated playback unit, (b) the projector lamp to be switched off, and (c) current supply to the projector picture-change mechanism to be maintained until the series of still pictures are positioned to re-project the first picture of the series, whereupon current supply to the projector is switched off and the apparatus is restored to its initial condition.

5. Apparatus according to any preceding claim, wherein the means for changing the picture displayed is triggered by signals generated by the sound records.

6. Apparatus according to claim 5, wherein each record comprises a twin-track magnetic tape, one track bearing a commentary and the second track bearing appropriately positioned triggering pulses.

7. Apparatus according to claim 6, wherein each trigger pulse actuates a relay which applies a voltage to the picture-change mechanism in the projector.

8. Apparatus according to any preceding claim, wherein the apparatus is housed in a cabinet having a translucent projection screen on which the pictures are displayed and carrying on its outer surface a plurality of selector switches corresponding to the number of spoken commentaries provided by the apparatus.

9. Apparatus according to any preceding claim, wherein apparatus is coin-operated.

10. Audio-visual display apparatus substantially as described with reference to the drawings.